DISPLAY APPARATUS AND THE CONTROLLING METHOD THEREOF

CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This application claims priority under 35 U.S.C. §119(a) from Korean Patent Application No. 10-2015-0144501, filed on Oct. 16, 2015, in the Korean Intellectual Property Office, the disclosure of which is hereby incorporated by reference in its entirety.

TECHNICAL FIELD

[0002] Exemplary embodiments relate to a display apparatus and a controlling method thereof, and more particularly, to a display apparatus which automatically sets a communication protocol and a controlling method thereof.

BACKGROUND

[0003] With the advancement of digital technology, various types of electronic products have been developed and distributed. In particular, various display apparatuses such as television (TV), a mobile phone, a personal computer (PC), a notebook PC, and a personal digital assistant (PDA) are widely used in typical households.

[0004] While use of the display apparatuses has been increasing, user needs with respect to a variety of functions have been increasing. Accordingly, the efforts of each manufacturer to satisfy user needs have increased, and a new product having new functions has been emerging in markets.

[0005] In particular, the display apparatus may be connected to a device such as a set-top box, receive various broadcast contents, and provide a viewer with the contents. Here, the display apparatus may be connected by using a port of HDMI (i.e., high definition multimedia interface) and a port of UART (i.e., Universal Asynchronous Receiver Transmitter), receive a video and an audio signal via the HDMI port, and communicate with a set-top box via the UART port.

[0006] In the meantime, the display apparatus, when being used in conjunction with a set-top box, should use the communication protocol corresponding to the set-top box, but until now, a user may be required to directly select a desired communication protocol on a setting menu displayed in the display apparatus, and thus, such a requirement is inconvenient to a user.

SUMMARY

[0007] One or more exemplary embodiments may overcome the above disadvantages and other disadvantages not described above. However, it will be understood by a person of ordinary skill in the art that one or more exemplary embodiments are not required to overcome the disadvantages described above, and may not overcome any of the problems described above.

[0008] One or more exemplary embodiments provide a display apparatus which selects a communication protocol based on the received information regarding the external device and a method thereof.

[0009] According to an exemplary embodiment, a display apparatus includes a first input port configured to receive information that relates to an external device; a second input port configured to facilitate a communication with the external device and to receive a control command; and a processor configured to control the second input port to automatically select a communication protocol that corresponds to the second input port based on the received information that relates to the external device, and to perform the communication with the external device via the second input port by using the selected communication protocol.

[0010] The information that relates to the external device may include at least one from among information that relates to a manufacturer of the external device, a name of the external device, and a product group that relates to the external device.

[0011] The information that relates to the external device may be stored in a source production description (SPD) packet.

[0012] The SPD packet may include a plurality of fields which respectively indicate the information that relates to the manufacturer of the external device, the name of the external device, and the product group that relates to the external device.

[0013] The first input port may be configured in accordance with a high definition multimedia interface (HDMI) specification.

[0014] The display apparatus, according to an exemplary embodiment, may further include a storage configured to store information that relates to a plurality of communication protocols, and the processor may be further configured to select the communication protocol that corresponds to the second input port from among the plurality of communication protocols based on the received information that relates to the external device.

[0015] The apparatus may further include a communicator configured to communicate with a server, and the processor may be further configured to receive, from the server via the communicator, information that relates to a communication protocol required for communicating with the external device, and to communicate with the external device based on the information that relates to the communication protocol received from the server.

[0016] The apparatus may further include a storage configured to store information that relates to a plurality of communication protocols, and the processor may further configured to control the storage to store the information that relates to the communication protocol received from the server, and to update the information that relates to the plurality of communication protocols.

[0017] The second input port may be configured to use a universal asynchronous receiver transmitter (UART) communication method.

[0018] The apparatus may further include a photographer, and the processor may be further configured to use the photographer for recognizing a quick response (QR) code attached to the external device, and to obtain the information that relates to the external device based on the recognized QR code.

[0019] The processor may be further configured to receive, from the external device, information that relates to an image and a sound via the first input port, and to receive the control command for controlling the display device via the second input port.

[0020] According to an exemplary embodiment, a method for controlling a display apparatus which includes a first input port configured to receive information that relates to an external device and a second input port configured to